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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,660	02/18/2004	Jeng-Yuan Lai	60869 (71987)	5218

7590 06/13/2005

Mr. Peter F. Corless
EDWARDS & ANGELL, LLP
101 Federal Street
Boston, MA 02110

EXAMINER

NGUYEN, THINH T

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,660

Applicant(s)

LAI ET AL.

Examiner

Thinh T. Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,11-16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) 2,10 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED OFFICE ACTION

Specification

1. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b/e) that form the basis for the rejections under this section made in this office action.

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1,3,9,11,16 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakayama et al. (U.S. Patent 6,208,023) or under 35 U.S.C. 102(e) as being anticipated by Jang (US patent 6,853,059)

REGARDING CLAIM 1

Nakayama discloses (the abstract, fig 1(b)) a lead frame comprising: a die pad having a top surface for mounting at least one semiconductor chip thereon, and a bottom surface; at least one grounding portion (fig 1(b) reference 12a, column 10 lines 13-16, column 10 lines 43-45) protruded from the die pad and having grounding surface, wherein the thickness of the grounding portion is smaller than that of the die pad, and a ground pad is formed on the grounding surface of the grounding portion, allowing at least one grounding wire to be bonded to the ground pad and the semiconductor chip for transmitting ground signals; and a plurality of leads surrounding the die pad, for allowing a set of bonding wires to be bonded to the leads and the semiconductor chip so as to electrically connect the semiconductor chip to the leads.

Note that even though Nakayama does not mention ground pad since it use wire bonding it inherently has a bonding ground pad on the grounding surface.

Similarly, Jang (in fig 2 , grounding surface 264) disclose the same invention

REGARDING CLAIM 3,11

Nakayama discloses (in fig 1(b) wherein the grounding surface is flushed with the top surface of the die pad.

Similarly, Jang (in fig 2 , grounding surface 264) disclose the same invention

Nakayama discloses (the abstract, fig 1(b)) a semiconductor package, comprising: at least one semiconductor chip; a lead frame for carrying the semiconductor chip, a lead frame comprising: a die pad having a top surface for mounting at least one semiconductor chip thereon, and a bottom surface; at least one grounding portion (fig 1(b) reference 12a, column 10 lines 13-16, column 10 lines 43-45) protruded from the die pad and having grounding surface, wherein the thickness of the grounding portion is smaller than that of the die pad, and a ground pad is formed on the grounding surface of the grounding portion, allowing at least one grounding wire to be bonded to the ground pad and the semiconductor chip for transmitting ground signals; and a plurality of leads surrounding the die pad, for allowing a set of bonding wires to be bonded to the leads and the semiconductor chip so as to electrically connect the semiconductor chip to the leads. and an encapsulation body for encapsulating the semiconductor chip, the die pad, the grounding portion and part of the leads.

Note that even though Nakayama does not mention ground pad since it use wire bonding it inherently has a bonding ground pad.

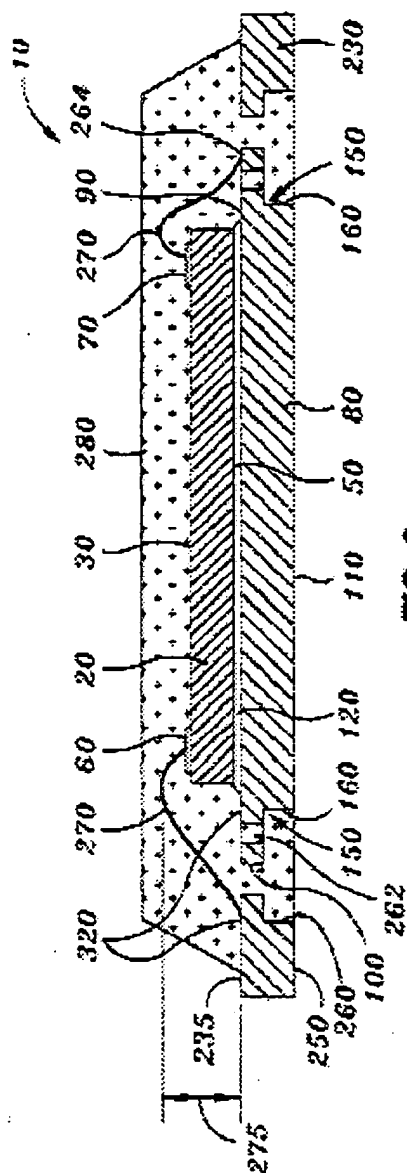


FIG. 2

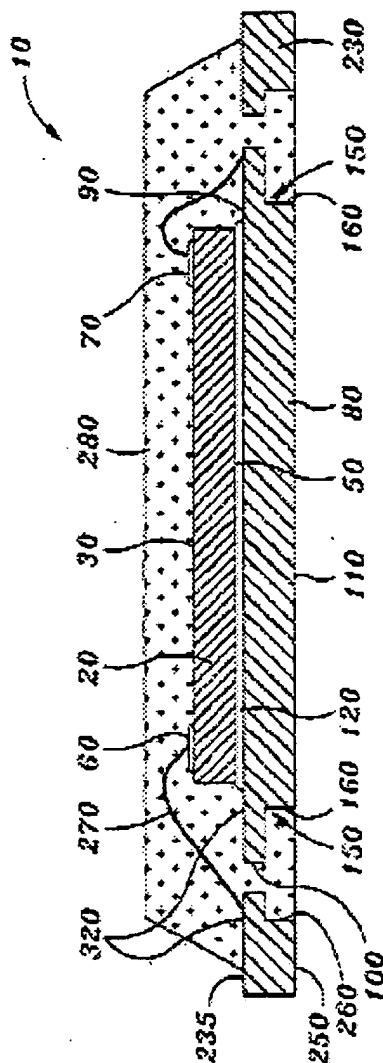


FIG. 3

Similarly, Jang (in fig 2 , grounding surface 264) disclose the same invention

REGARDING CLAIM 16

Nakayama discloses (the abstract, fig 1(b)) a semiconductor package wherein the bottom surface of the die pad is exposed from the encapsulation body.

Similarly, Jang (in fig 2 , grounding surface 264) disclose the same invention

4. Claims 7,15 are rejected under 35 U.S.C. 102(e) as being anticipated by Jang (US patent 6,853,059).

REGARDING CLAIM 7,15

Jang discloses (in column 2 line 35 ,claim 17) a leadframe structure with tie bar.

5. Claims 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakayama et al. (U.S. Patent 6,208,023)

REGARDING CLAIM 18-19

Nakayama discloses (the abstract line 3, fig 1(b)) a semiconductor package wherein the chip is attached to the die pad via a silver paste.

Claim Rejections - 35 USC § 103

6. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art

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are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4-6 ,8,10,12,13,14,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayama et al. (U.S. patent 6,208,023) in view of further remark.

REGARDING CLAIM 4,12.

Nakayama discloses all the invention except for specifying the thickness of the grounding portion is about half of the die pad.

This feature; however, is considered obvious since it has been held that when the general conditions of a claim are disclosed in the prior art; discovering the optimum value or workable range involves only routine skill in the art.

REGARDING CLAIM 5

Nakayama discloses all the invention except for the use of copper in the leadframe
This feature; however, is considered obvious since the use of copper as material for leadframe is old and well known in the art.

A person skilled in the art at the time the invention was made would have been capable using copper as the material for leadframe without any special teachings.

REGARDING CLAIM 6,8, 13,14,20

Nakayama discloses all the invention except for the additional technical features disclosed in claim 6,8,13,14,20.

These features, however, have been all disclosed in Applicant Admitted Prior Art (see fig 2B,fig 3B, paragraph [0002] of the present application).

The reasons why claims 6,8, 13,14,20 are obvious over Nakayama and Applicant
Admitted Prior Art have been discussed in the rejection of claim 5

ALLOWABLE SUBJECT MATTER

8. Claims 2, 10 ,17 are objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.

Claim 2 ,10,17 are considered allowable since the prior fails to teach the additional technical features as recited in claim 2,10,17

9. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

10. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

11. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) which papers have been placed of record in the file.

CONCLUSION

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790.

The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.


The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval [PAIR] system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thinh T. Nguyen



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David Nelms
Supervisory Patent Examiner
Technology Center 2800